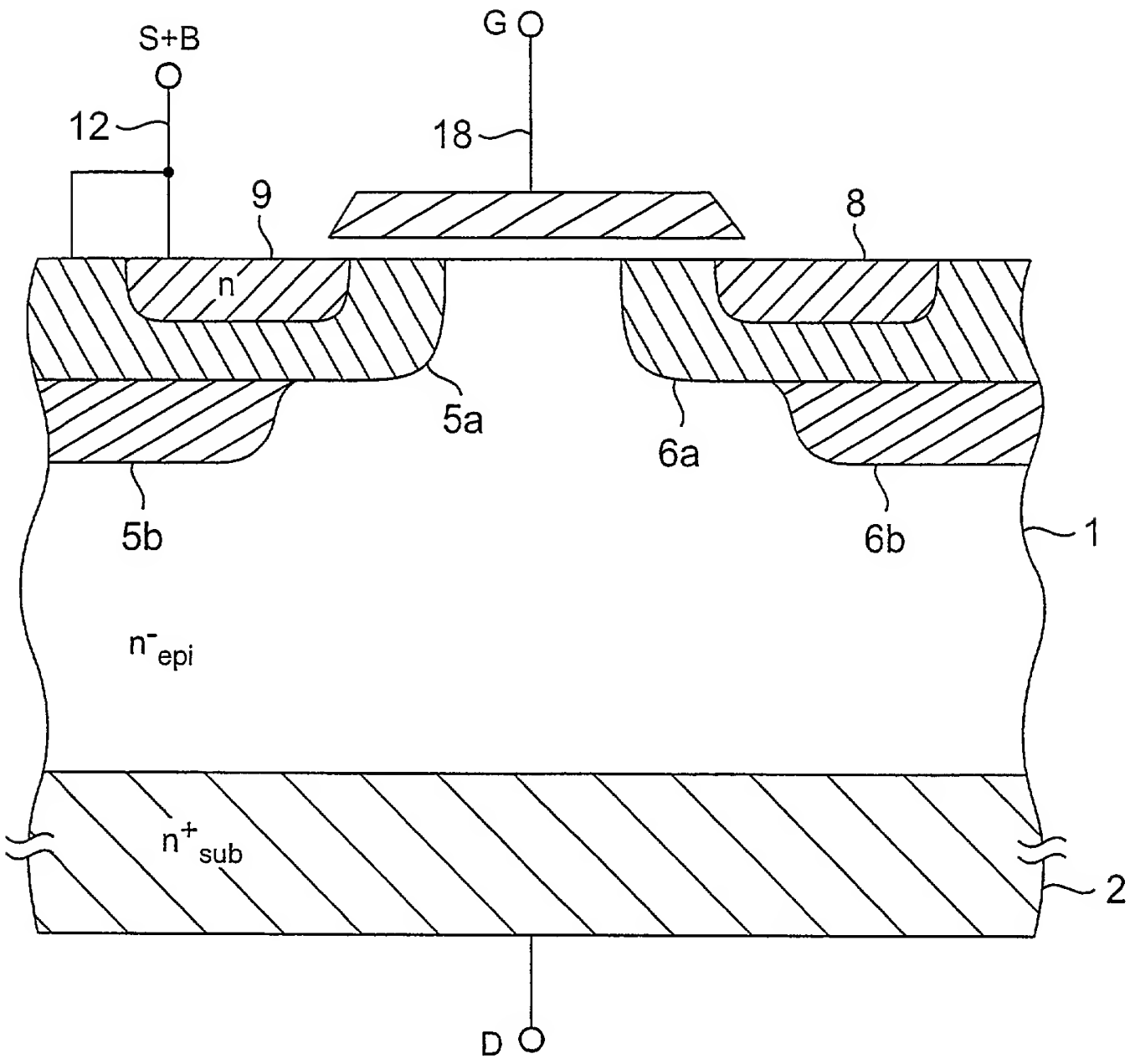


CONVENTIONAL MOSFET

FIG. 1

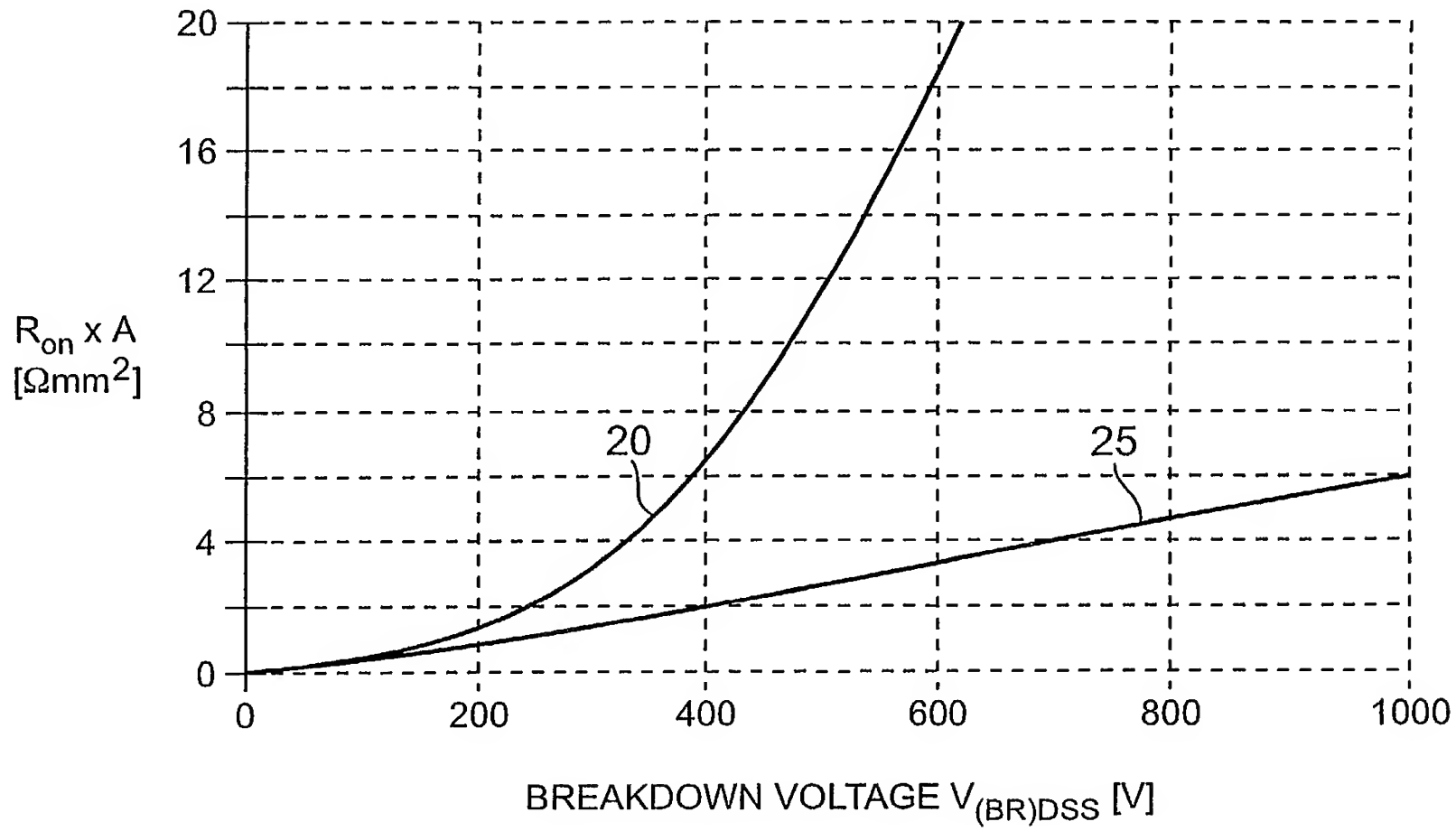
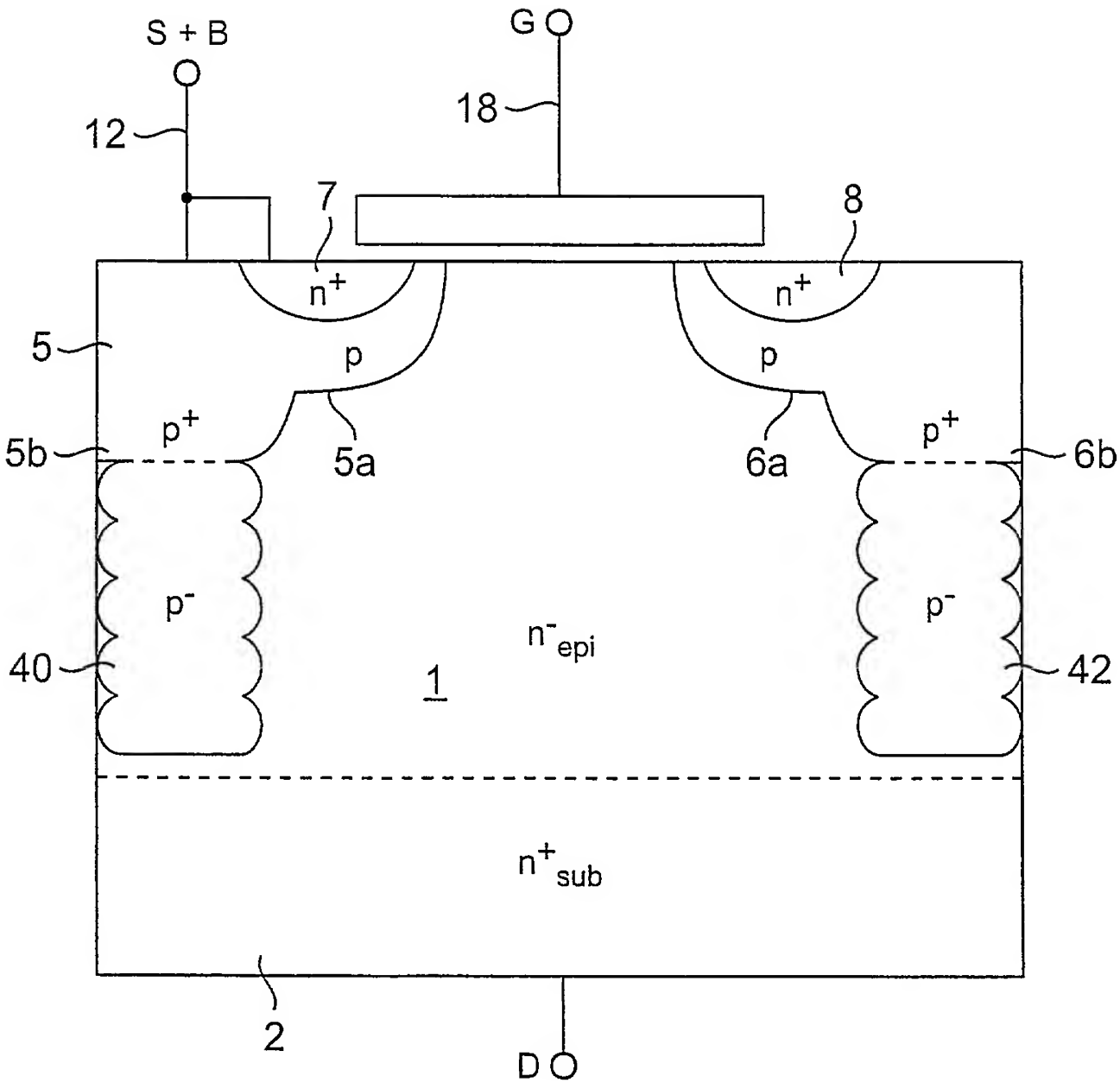

20
16
12
8
4
0
R_{on} x A
[Ωmm^2]
20
25
0
200
400
600
800
1000
BREAKDOWN VOLTAGE $V_{(BR)DSS}$ [V]

FIG. 2



THE DOPANT DISTRIBUTION OF A HIGH VOLTAGE VERTICAL DMOS TRANSISTOR WITH A RELATIVELY LOW ON-RESISTANCE

FIG. 3

Step

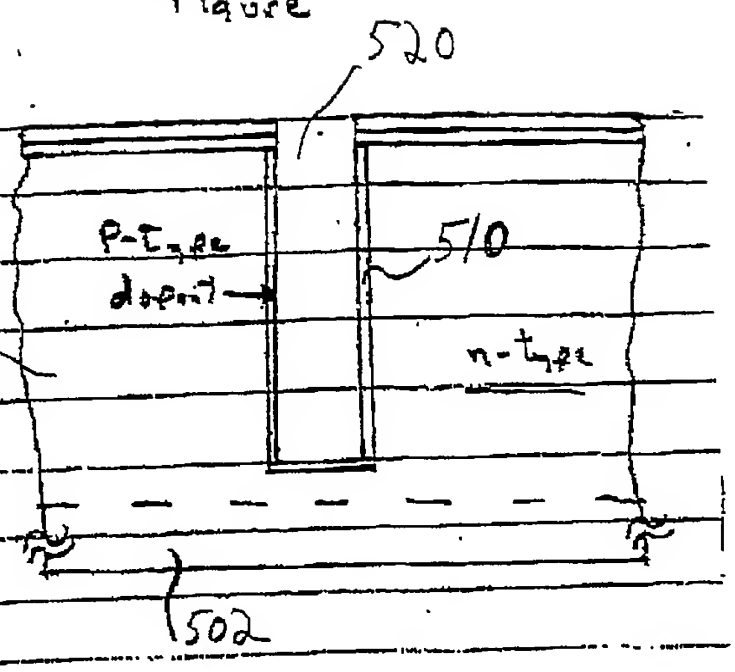
1. Grow/deposit a trench etch-stop layer.

2. Mask and etch the trench etch-stop layer.

3 Etch the trench using a gas that contains the desired dopant species.

4a

Figure



4. Fill the trench with a dielectric or a high resistivity layer

5. Planarize

6. Diffuse the dopant to form the desired junction

4b

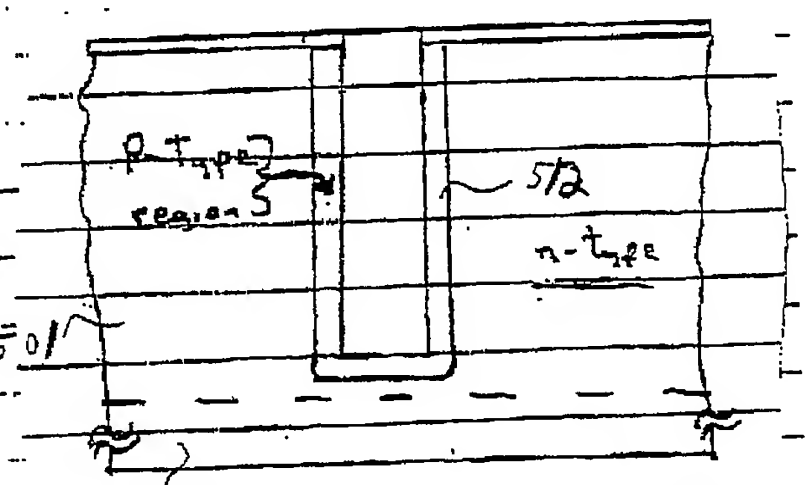
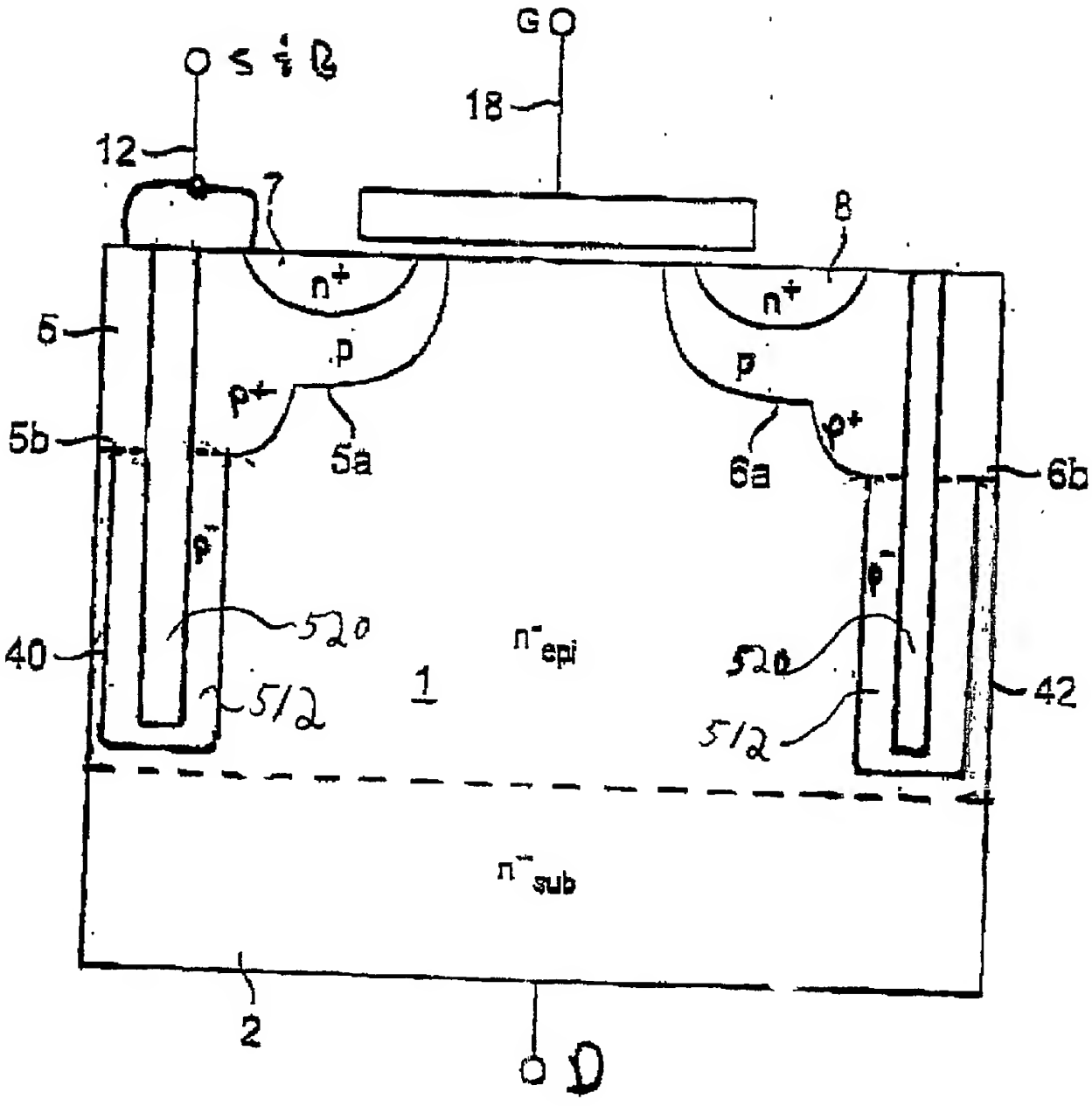


Figure 4. The steps in the fabrication of the voltage sustaining junction.



THE DOPANT DISTRIBUTION OF A HIGH VOLTAGE VERTICAL DMOS TRANSISTOR WITH A RELATIVELY LOW ON-RESISTANCE

FIG. 5